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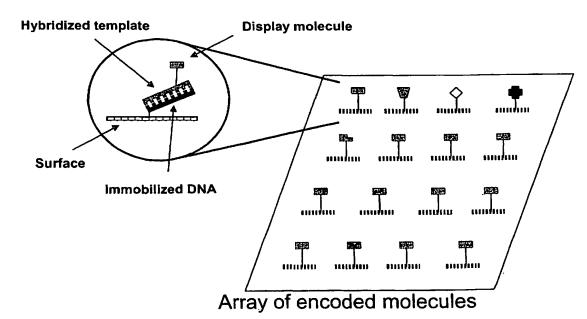
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(54) Title: MICROARRAYS DISPLAYING ENCODED MOLECULES



(57) Abstract: Disclosed is a microarray comprising a plurality of single stranded nucleic acid probes immobilized in discrete areas of a solid support, said probes being hybridised to a library of complexes, wherein each complex comprises an encoded molecule and a template which codes for said molecule, said template comprising a number of codons which codes for chemical entities which upon reaction form a reaction product which at least partly form part of the encoded molecule.





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IPC 7 C12Q1/68 C12N15/10 //C12P21/02,C07H21/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) C12Q C12N C07H C12P Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, MEDLINE, BIOSIS, EMBASE C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Category ° Citation of document, with Indication, where appropriate, of the relevant passages 1-10 WO OO 23458 A (UNIV LELAND STANFORD Υ JUNIOR) 27 April 2000 (2000-04-27) page 1 -page 3, =line 30 Y US 5 723 598 A (BRENNER SYDNEY ET AL) 1-10 3 March 1998 (1998-03-03) column 1 -column 3, line 1 SUMMERER D'ET AL? "DNA-TEMPLATED 1-10 Υ SYNTHESIS: \* MORE VERSATILE THAN EXPECTED" ANGEWANDTE CHEMIE. INTERNATIONAL EDITION, VERLAG CHEMIE. WEINHEIM, DE, vol. 41, no. 1, 4 January 2002 (2002-01-04), pages 89-90, XP001170352 ISSN: 0570-0833 the whole document -/--Patent family members are listed in annex. Further documents are listed in the continuation of box C. Χl o Special categories of cited documents : "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance Invention "E" earlier document but published on or after the International "X" document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is clied to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an invention the considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. \*O\* document referring to an oral disclosure, use, exhibition or document published prior to the international filing date but later than the priority date claimed "A" document member of the same patent family Date of mailing of the international search report Date of the actual completion of the international search 10/02/2004 3 February 2004 Name and malling address of the ISA **Authorized officer** European Patent Office, P.B. 5818 Patentiaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016 Osborne, H



# INTERNATIONAL SEARCH REPORT

int ional Application No PCT/DK 03/00417

C.(Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT			
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y	BRUICK R K ET AL: "TEMPLATE-DIRECTED LIGATION OF PEPTIDES TO OLIGONUCLEOTIDES" CHEMISTRY AND BIOLOGY, CURRENT BIOLOGY, LONDON, GB, vol. 3, no. 1, January 1996 (1996-01), pages 49-56, XP000856876 ISSN: 1074-5521 the whole document	1-10		
Y	WALDER J A ET AL: "COMPLEMENTARY CARRIER PEPTIDE SYNTHESIS: GENERAL STRATEGY AND IMPLICATIONS FOR PREBIOTIC ORIGIN OF PEPTIDE SYNTHESIS" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 76, no. 1, January 1979 (1979-01), pages 51-55, XP000857351 ISSN: 0027-8424 the whole document	1-10		
Υ	EP 0 778 280 A (ISIS INNOVATION) 11 June 1997 (1997-06-11) figures 4,5; example 17	1-10		
Y	₩O 96 41011 A (SPECTRAGEN INC) 19 December 1996 (1996-12-19) 1 figure 3	1-10		
Υ	LOCKHART D J ET AL: "EXPRESSION MONITORING BY HYBRIDIZATION TO HIGH-DENSITY OLIGONUCLEOTIDE ARRAYS" BIO/TECHNOLOGY, NATURE PUBLISHING CO. NEW YORK, US, vol. 14, no. 13, 1 December 1996 (1996-12-01), pages 1675-1680, XP002022521 ISSN: 0733-222X the whole document	1-10		
Y	WO 97 27317 A (CHEE MARK ;LAI CHAOQIANG (US); LEE DANNY (US); AFFYMETRIX INC (US)) 31 July 1997 (1997-07-31) figures 12-15	1-10		
Y	WO 99 42605 A (SCHWABACHER ALAN W) 26 August 1999 (1999-08-26) page 2, line 11 - line 16	1-10		
A	WO 94 08051 A (READER JOHN C ;STILL W CLARK (US); UNIV COLUMBIA (US); COLD SPRING) 14 April 1994 (1994-04-14)			

nte snal Application No

Information on patent ramily members

PCT/DK 03/00417

Patent document	Publication		Patent family	Publication
cited in search report	date		member(s)	date
WO 0023458 A	27-04-2000	AU	1318400 A	08-05-2000
		CA	2346989 A1	27-04-2000
·		EP	1123305 A1	16-08-2001 27-04-2000
		WO	0023458 A1	27-04-2000
US 5723598 A	03-03-1998	US	5573905 A	12-11-1996
		US	6060596 A	09-05-2000
		AT	193561 T	15-06-2000
		AU	685050 B2	15-01-1998 08-11-1993
		AU CA	3944993 A 2132103 A1	14-10-1993
		DE	69328781 D1	06-07-2000
		DE	69328781 T2	26-04-2001
		DK	643778 T3	07-08-2000
		EP	0643778 A1	22-03-1995
		ES	2147197 T3	01-09-2000
1		JP	7505530 T	22-06-1995
	م — خان — نب نب الب البيار الي	WO	9320242 A1	14-10-1993
EP 0778280 A	11-06-1997	EP	0778280 A2	11-06-1997
1	•.•	AT	159767 T	15-11-1997
		AT	230409 T	15-01-2003 13-08-1998
		AU AU	695349 B2 7269194 A	28-02-1995
		CA	2168010 A1	09-02-1995
		CN	1131440 A ,B	18-09-1996
		DE	69406544 D1	04-12-1997
		DE	69406544 T2	26-02-1998
		DE DK	69431967 D1 711362 T3	06-02-2003 22-12-1997
		EP	0711362 A1	15-05-1996
		ĒS	2108479 T3	16-12-1997
		FΙ	960403 A	29-01-1996
		WO	9504160 A1	09-02-1995
		HU Jp	73802 A2 3289911 B2	30-09-1996 10-06-2002
		JP	9501830 T	25-02-1997
		NO	960370 A	28-03-1996
		RU	2158310 C2	27-10-2000
		US	2002115091 A1	22-08-2002
		US US	5770367 A 2001031472 Al	23-06-1998 18-10-2001
		US	6218111 B1	17-04-2001
WO 9641011	19–12–1996		5635400 A	03-06-1997 13-04-2000
		AU AU	718357 B2 6102096 A	30-12 <b>-</b> 1996
		CA	2222581 A1	19-12-1996
		CA	2332731 A1	19-12-1996
1		CN	1193357 A	16-09-1998
		CZ	9703926 A3	17-06-1998
		EP Hu	0832287 A1 9900910 A2	01-04-1998 28-07-1999
		JP	11507528 T	06-07-1999
		NO	975744 A	05-02-1998
		PL	324000 A1	27-04-1998
1		WO	9641011 A1	19-12-1996
		AU	712929 B2	18-11-1999
<del></del>				

ite nal Ap

Intq all Application No PCT/DK 03/00417

## Information on patent family members

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9641011	A		AU	4277896 A	06-05-1996
<b>70 70</b> 11111	••		ΑÜ	7717596 A	30-04-1997
			CA	2202167 A1	25-04-1996
•			CZ	9700866 A3	17-09-1997
			EP	0793718 A1	10-09-1997
			ĒΡ	0931165 A1	28-07-1999
			FΙ	971473 A	04-06-1997
			JP	10507357 T	21-07-1998
			NO	971644 A	02-06-1997
			US	6280935 B1	28-08-2001
			MO	9713877 A1	17-04-1997
				6235475 B1	22-05-2001
			US 	02354/5 BI	22-05-2001
WO 9727317	Α	31-07-1997	AU	2253397 A	20-08-1997
			EP	0880598 A1	02-12-1998
			JP	2002515738 T	28-05-2002
			MO	9727317 A1	31-07-1997
			US	2003180757 A1	25-09-2003
			US	2003064364 A1	03-04-2003
			US	6344316 B1	05-02-2002
			US	2002165372 A1	07-11-2002
WO 9942605	Α	26-08-1999	US	2002006604 A1	17-01-2002
			ΑU	2871299 A	06-09-1999
			CA	2321111 A1	26-08-1999
			EΡ	1056882 A1	06-12-2000
		•	JP	2002540380 T	26-11-2002
			WO	9942605 A1	26-08-1999
WO 9408051	A	14-04-1994	AT	244769 T	15-07-2003
			AU	716621 B2	02-03-2000
			AU	4525897 A	12-02-1998
			AU	. 686579 B2	12-02-1998
			AU	5536994 A	26-04-1994
			CA	2143848 A1	14-04-1994
			DE	69333087 D1	14-08-2003
			DK	665897 T3	20-10-2003
			ΕP	0665897 A1	09-08-1995
			HU	72495 A2	28-05-1996
			ÏĹ	107166 A	31-10-2000
			JP	8506175 T	02-07-1996
			NO.	951230 A	30-03-1995
			WO	9408051 A1	14-04-1994
			ÜS	5565324 A	15-10-1996
			US	5968736 A	19-10-1999
			US	5721099 A	24-02-1998
			US	5721099 A 5789172 A	04-08-1998
			US	6503759 B1	07-01-2003
			ú2	19 66/6060	07-01-2003